



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street
San Francisco, CA 94105-3901

7-30-97

Mr. Keith E. Asmussen, Director
Licensing, Safety and Nuclear Compliance
General Atomics
3550 General Atomics Court
San Diego, CA 92121-1194

Dear Mr. Asmussen:

This letter grants approval to GENERAL ATOMICS to conduct a research and development (R & D) treatability study using a hydrothermal oxidation process known as Super Critical Water Oxidation (SCWO) to destroy organic materials including PCBs.

This approval is for R & D only and is subject to the conditions expressed herein and is consistent with the May 2, 1997 and June 17, 1997 General Atomics' application for Research and Development to study the above mentioned processes for PCB destruction.

This Research and Development approval is valid when conducted at General Atomics' facility located at 3550 General Atomics Court in San Diego, CA 92121.

This Approval will take effect upon signature by EPA Region IX's Chief of the Toxics Section, Cross Media Division and will end on July 31, 1998.

All test results and related information on this R & D project shall be incorporated into a test report and submitted to the Toxics Section (CMD-4-2) no later than 60 days after the completion date of the project. The items to be covered are listed in Condition 8 of this approval.

Pursuant to the regulations in 40 CFR Part 2, Subpart B, General Atomics is entitled to assert a business confidentiality claim covering any information submitted under this research and development approval. If such a confidentiality claim is not asserted with any submission, EPA may make this information available to the public without any further notice to General Atomics. Information subject to a business confidentiality claim may be made available to the public only to the extent set forth in the above cited regulations. Any such claim for confidentiality must conform to the requirements set forth in 40 CFR § 2.203(b).

The issuance of this Research and Development Approval does not release General Atomics from any liability for damage to persons or property caused by or resulting from the operation or maintenance of equipment covered by this approval. The conditions of this approval are enforceable under the Toxic Substances Control Act (TSCA) and its

implementing regulations, 40 CFR Part 761. Any actions by General Atomics which violate the terms and conditions of this letter, TSCA or the regulations may result in administrative, civil, or criminal enforcement by EPA in accordance with Section 16 of TSCA, 15 U.S.C. § 2615.

Authority

This approval to conduct R & D into PCB disposal is issued pursuant to section 6(e)(1) of TSCA, Public Law No. 94-469, and the Federal PCB Regulations, 40 CFR Part 761.60(i)(2).

Under Parts 761.60(i) and 761.65(d)(2) of Subpart D of 40 CFR, the Regional Administrator is authorized to issue Approvals governing research and development of PCB disposal technologies for treating less than 500 pounds of PCB containing material. This authority has been redelegated to the Chief of the Toxics Section by Regional Order.

Background

Now privately owned, General Atomics (GA) was established in 1985 as a division of General Dynamics. GA and its affiliated companies are developers of gas-cooled nuclear power reactor technology and remediation technology systems that include a Super Critical Water Oxidation process (SCWO) for destruction of obsolete chemical munitions.

Workplan

General Atomics proposes to conduct treatability studies on anaerobically digested municipal sewage sludge contaminated with PCBs at levels up to 5,000 ppm by a Super Critical Water Oxidation process (SCWO) to destroy organic materials that include PCBs. The process involves mixing sewage sludge with an oxidant at temperatures and pressures above the critical point of water (374 °C and 218 atm) or the temperature at which water vapor can no longer be liquified regardless of pressure. Under these conditions, organic and gaseous materials dissolve in water and react with the oxidant. The process is completely contained and the resulting reaction products consists only of carbon dioxide, water and salts. The purpose of the study is to optimize the operating conditions of the process for PCB destruction.

Conditions

1. General Atomics may treat up to a total of 499 pounds of anaerobically digested municipal sewage sludge contaminated with PCBs at levels up to 5,000 ppm or sewage sludge doped up to 5,000 ppm with PCBs during the 12 month duration of this approval.
2. General Atomics shall notify the Chief, Toxics Section of EPA Region IX in writing 30-days before startup of any study along with the source, identity, description and PCB concentration(s) of the contaminated or doped test sludge to be used.

3. General Atomics shall take precautions to ensure all phases of the different treatability studies described in this operation are in compliance with the applicable safety and health standards required by Federal, State, and local regulations and ordinances.

4. All wastes and materials treated by General Atomics under the authority of this approval will be considered PCB contaminated and shall be treated or disposed of in accordance with 40 CFR 761.60. Any PCB contaminated glassware, piping, extraction vessels, vials and other equipment shall either be decontaminated in accordance with the procedures stipulated in 40 CFR 761.79 or treated and disposed of in accordance with 40 CFR 761.60.

5. Prior to commencing the tests, General Atomics must obtain any other Federal, State, or local permits or approvals that may be required. During the course of the testing, General Atomics shall comply with all conditions and requirements of such permits or approvals. Copies of such permits must be forwarded to the Toxics Section, EPA Region IX.

6. Prior to treatment, the PCB contaminated or PCB doped feedstock (sewage sludge) must be sampled and analyzed by gas chromatography for the concentration of PCBs in accordance with EPA-approved procedures.

7. Provisions must be made to assure that all process elements are suitably monitored and recorded for each batch/run of PCB laden material processed so that materials harmful to health or the environment are not inadvertently released. Records must be maintained that identify the:

- a. quantity, matrix, and PCB concentration of the raw material to be processed;
 - b. quantity, matrix, and PCB concentration of any material produced;
 - c. quantity and characteristics of the process waste generated, including vent gas emissions and other resulting effluents, if any;
 - d. date, time, and duration of each run;
 - e. name of operator and supervisor; and
 - f. data from all pertinent operating parameters, for each run.
8. The R & D test report shall include the following information:
- a. Certification letter. This letter, signed by an authorized official, must certify on behalf of the applicant that the tests were carried out in accordance with the

approved application and the results of all determinations are submitted in the report. Any changes or deviations by the applicant from the application must be documented and submitted in writing to the EPA.

b. Detailed discussion of all process operations, operational problems, if any, and corrective actions.

c. Chronology of significant events.

d. Quality Assurance (QA) report. This should address all the QA objectives, including whether or not precision and accuracy objectives were met, as well as results of quality control samples, performance audit samples, and systems audit.

e. Waste Identification. Applicant must identify and characterize all waste stream effluents and by-products generated by the PCB treatment process, if any, and determine if any constituents of the processed oil are subject to other Federal [e.g., Resource Conservation and Recovery Act (RCRA)], State, and local regulations.

f. Waste Handling. Applicant should provide documentation (i.e., copies of manifest) to show that any wastes generated during the R & D process test were properly disposed of according to the Toxic Substances Control Act (TSCA) and RCRA regulations. Applicant should be aware that all wastes generated during the test should be disposed by incineration and not landfilling, unless compliance with the landfill restrictions can be demonstrated.

9. In the event General Atomics or an authorized facility operator of the PCB process believes, or has reason to believe, that a release of PCBs has or might have occurred, the facility operator must immediately take steps to terminate operations and inform Region IX by telephone at (415) 744-1118 by the next regular business day. A written report describing the incident must be submitted by the close of business on the next regular business day.

No PCBs may be processed in that facility until the release problem has been corrected to the satisfaction of EPA.

10. EPA employees shall have access to the General Atomics' Laboratory R & D work site during the test runs for purposes of inspection, observation, or sampling. This access shall be subject to the normal safety requirements placed on General Atomics personnel or their agents.

11. General Atomics must take all necessary precautionary measures to ensure that operation of the PCB test facility is in compliance with the applicable safety and health standards, as required by Federal, State, and local regulations and ordinances.

12. General Atomics' testing facility shall be secured (e.g., fence, alarm system, etc.) to restrict public access to the area. Any personal injury occurring as a result of this process must be reported to Region IX at (415) 744-1118 by the next working day.

13. Any spills of PCBs or other fluids shall be promptly controlled and cleaned up in accordance with the EPA PCB Spill Cleanup Policy criteria found in the April 2, 1987 Federal Register. In addition, a written report describing the spill, operations involved, and cleanup actions must be submitted to the Region IX Chief, Toxics Section within five (5) business days.

14. General Atomics is responsible for ensuring that personnel directly involved with the handling and disposal of PCB-contaminated material used in the study are demonstrably familiar with the general requirements of this R & D approval. At a minimum this must include:

- a. the type of material which may be treated during the testing of the each technique;
- b. basic reporting and recordkeeping requirements under this R & D approval and the location of records at the testing site;
- c. notification requirements; and
- d. waste disposal requirements for process and by-product wastes generated during the testing of this unit.

In this regard, General Atomics must maintain on-site, during the testing of its disposal technologies, copies of this R & D approval; spill prevention and cleanup plan; and the sampling and analytical procedures used to determine PCB concentrations in untreated and treated materials.

13. Untreated PCB material may not be transported off-site except for proper disposal.

14. All wastes and effluent streams generated by the technology studied must be characterized.

15. General Atomics must comply with all applicable requirements of the federal PCB Regulations, 40 CFR Part 761, in the operation of the disposal process. Particular note should be given to:

- a. 40 CFR, section 761.65 - storage for disposal;
- b. 40 CFR, section 761.79 - decontamination; and
- c. 40 CFR, section 761.180 - records and monitoring.

16. Any departure from the conditions of this research and development approval or the terms expressed in the application and R & D plan from General Atomics must receive authorization from EPA Region IX. Verbal authorizations by EPA must be followed within ten working days by a written notification from General Atomics describing all modifications.

In this context, "application and R & D plan" shall be defined as all data and materials which have been received by this Agency from General Atomics regarding their PCB destruction technologies.

Under the above conditions, and given the circumstances under which the research and development tests will be conducted, the Environmental Protection Agency finds, pursuant to 40 CFR §761.60(e), that these tests will not present an unreasonable risk of injury to health or the environment.

This approval covers the waste cited above only. If you have any questions concerning approval, please contact Yosh Tokiwa at (415) 744-1118 or Max Weintraub at (415) 744-1129.

Date

Paula Bisson

Paula Bisson
Chief
Toxics Section
Cross Media Division

cc: James T. Allen, DTSC, CA- EPA
Mardis Coers, DTSC, CA-EPA

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U.S. EPA CONCURRENCES

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